

## SYNTHETIC BIOLOGY AND THE HIGH SCHOOL CURRICULUM: ESSAY

[http://openwetware.org/wiki/Synthetic\\_Biology\\_and\\_the\\_High\\_School\\_Curriculum:\\_Essay](http://openwetware.org/wiki/Synthetic_Biology_and_the_High_School_Curriculum:_Essay)



### Essay Topic

Synthetic biology has emerged only recently as an engineering discipline. At this point, the field has more potential than accomplishment. Some people see an incredible potential that includes cures for diseases, biosynthetic fuels and houses that are grown from gourds, e.g. the Fab Tree Hab Village shown here, <http://www.archinode.com/bienal10.html>. Other people question the safety of a process that involves altering genomes. Your assignment is to investigate synthetic biology using the following resources:

- What is synthetic biology?

[http://www.bio.davidson.edu/projects/GCAT/Synthetic/What\\_Is\\_SynBio.html](http://www.bio.davidson.edu/projects/GCAT/Synthetic/What_Is_SynBio.html)

- A Life of Its Own

[http://www.newyorker.com/reporting/2009/09/28/090928fa\\_fact\\_specter](http://www.newyorker.com/reporting/2009/09/28/090928fa_fact_specter)

- Our Synthetic Futures

<http://www.synbiosafe.eu/uploads///pdf/Our%20Synthetic%20Futures.pdf>

Then write an essay in which you address this question:

***Do the potential contributions to society warrant the potential risks inherent in synthetic biology?***

As you write the essay be sure to:

- Provide an overview of the field of synthetic biology.
- Describe synthetic biology's potential benefits.
- Describe synthetic biology's potential risks.
- Take a stand on the issue and back up your arguments.
- Examine the Essay Rubric and Essay Scoresheet

### Essay Rubric

Category	0	1	2	3	4
<i>Thesis statement</i>	Not present	The thesis is poorly stated, hard to find or understand	The thesis is presented, but is ambiguous, weak, or unclear	The thesis is presented clearly and uses strong language	
<i>Strength of Argument</i>	Not present	Thesis is not supported by sufficient arguments	Thesis is supported by sufficient arguments but details are limited	Thesis is supported by sufficient arguments with good use of details	Thesis is supported by compelling arguments with excellent use of details
<i>Explanation of concepts</i>	Not present	Shows an inaccurate understanding of the prompts in the essay assignment	Shows a limited understanding of the prompts in the essay assignment	Shows an accurate understanding of most prompts in the essay assignment	Shows a thorough and accurate understanding of prompts in the essay assignment
<i>Research references used to prepare essay are properly cited and trustworthy</i>	Not present	In-text citations are present, but either in incorrect format or not for all cases	In-text citations are present, used correctly, and in correct format	In-text citations are present, used correctly, and in correct format. Sources beyond those given are used	
<i>Essay is typed, double-spaced, no larger than 12 font, has margins of 1", and is stapled. Scoresheet is attached</i>	Not present	Essay only has some of these things	Essay has all of these things		
<i>Organization is logical</i>	Not present	Essay exhibits lack of organization that inhibits understanding	Essay exhibits organization but has poor paragraph structure or redundancies	Essay exhibits logical organization and good paragraph. Organization strengthens argument	
<i>All grammar and spelling are correct</i>	Not present	Grammar and spelling are mostly correct	Grammar and spelling are correct and the paper has clearly been proofread and edited		
<i>Bibliography</i>	Not present	Presented but not in proper MLA format	Presented in proper MLA format		

## Essay Scoresheet

Name \_\_\_\_\_ Section \_\_\_\_\_ Date \_\_\_\_\_

Essay Title \_\_\_\_\_

Category	Scoring Criteria	Points	Student Evaluation	Teacher Evaluation
<b>Thesis statement</b>	Presented clearly and strongly	3		
<b>Strength of argument</b>	Excellent use of arguments and details	4 (x 2)		
<b>Explanation of concepts</b>	Thoroughly and accurately addresses the prompts	4 (x 2)		
<b>Research references</b>	Properly cited and trustworthy	3		
<b>Mechanics</b>	Report is typed, no larger than 12 font, 1.5 spacing and margins of 1"	2		
	Organization	3		
	All grammar and spelling are correct. Use of paragraphs aids organization.	2 (x 2)		
	Bibliography (MLA format)	2		
Total:		25		